

SECTION C Descriptions and Specifications

C.1. The UMM Antenna System parts must be manufactured in accordance with the following specifications/drawings:

NAVSEA Drawings (116)

QUALITY ASSURANCE REQUIREMENTS

1. Contractor's Quality/Inspection System:

- a. The contractor shall provide and maintain a written inspection system, which will assure that all supplies and services submitted to the Government for acceptance conform to contract requirements whether manufactured or processed by the contractor, or procured from subcontractors or vendors. The contractor shall perform or have performed the inspections and tests required to substantiate product conformance to drawing, specifications and contract requirements and shall also perform or have performed all inspections and tests otherwise required by the contract. The contractor's inspection shall be documented and shall be available for review by the Naval Surface Warfare Center Carderock Division, 4700 South Broad Street, Phila., PA 19112-1403, Attn. Code 9613, via the DCMC, fifteen (15) days after award of contract and throughout the life of the contract. The contractor shall notify the Naval Surface Warfare Center Carderock Division – Philadelphia Site in writing of any change to the inspection system. The inspection system shall be subject to disapproval if changes thereto would result in nonconforming product. Vendors currently operating under ANSI/ASQC Q9002-1994 or MIL-I-45208 quality system will be deemed acceptable under this provision.
- b. The Quality/Inspection System shall include the following:
 - 1) Document Control
 - 2) Purchasing
 - 3) Control of Customer Supplied Material (Government Furnished Material)
 - 4) Product Identification and Traceability
 - 5) Process Control
 - 6) Inspection and Testing
 - 7) Inspection Measuring and Test Equipment Calibration in accordance with the requirements of ANSI/NCSL Z540-1 or ISO 10012-1.
 - 8) Inspection and Test Status
 - 9) Control of Nonconforming Product
 - 10) Corrective Action
 - 11) Handling, Storage, Packaging, and Delivery
 - 12) Records
 - 13) Controls to assure sub-contractors comply with contract quality system requirements.

2. Procedures:

- a. The contractor shall furnish the following procedures:
 - 1) An inspection plan. This document shall contain as a minimum:
 - a) Step-by-step method with inspection/verification points.
 - b) Part Name.
 - c) Identification of each characteristic to be inspected.
 - d) Acceptance and reject criteria.
 - e) Actual dimension recordings.
 - 2) Nondestructive Test Procedures in accordance with SNT-TC-1A for:
 - a) Dye Penetrant, ASME III NB 5352
 - b) Radiography, ASME III NB 5320
 - c) Visual, ASME III NB 5352
 - 3) A written welding procedure and welder Qualification data in accordance with SAE-AMS-STD-2219

3. Records:

- a. For each assembly, component, delivered item, the supplier shall furnish one (1) copy of the following documents correlated to the contract number and serial number assigned to the assembly:
 - 1) For Contractor-Furnished Raw Material:
 - a) For contractor-supplied material, the contractor shall supply documented verification of raw material by alloy families using simple, direct and rapid analysis methods or a combination of methods (e.g., visual, hardness test, magnetic properties test, acid spot tests, and metal comparator tests).
 - 2) Copies of qualifications of personnel performing welding under this contract in accordance with NAVSEA SAE-AMS-STD-2219.
 - 3) Test reports showing the results of non-destructive testing inspections. Report must include joint identification, plan number, piece number, compliance to SNT-TC-1A for procedures used, and show acceptance to:

- a) Visual Inspection of Welds - ASME III NB 5352.
 - b) Dye Penetrant Testing - ASME III NB 5352.
 - c) Radiographic Testing of Welds – ASME III NB 5320.
- 4) Copies of current qualifications to SNT-TC-1A for personnel performing and evaluating the results of non-destructive test.
- 5) The inspection records shall show the results of every dimension inspected and shall include the inspector's signature and date. The inspection records are to be maintained on Objective Quality Evidence Data Sheets (OQEDS) supplied by the contractor. The results of dimensional inspections shall be indicated on a configuration facsimile of the component as shown on the applicable drawing. Actual measurements are required. The OQEDS shall contain:
- a) Copies of inspection records on the following characteristics are required for each piece:
 - (1) Dimensions
 - (2) Threads Class 3 or higher in accordance with ASME B1.3, System 22 requirements
 - (3) Threads Class 2 in accordance with ASME B1.3, System 21 requirements
 - (4) Geometric characteristics (forms, profile, orientation, location, run out, etc.)
 - (5) Finishes 32 or less.
 - (6) Angles
 - (7) Torque
 - b) A qualification summary sheet that will summarize and correlate all of the Objective Quality Evidence to support product quality. The contractor will supply certifications summary sheet blanks, used by the contractor.
 - c) All of the supplied documents shall have complete traceability to the hardware for inspection purposes. Therefore, whenever applicable, records shall show piece numbers, and drawing numbers.
- 6) Records for each assembly, component, delivered item shall identify the inspection, measuring, test equipment, calibration dates and calibration due dates for inspection, measuring, and test equipment used during verifications, inspections, and/or tests.
4. Mercury Exclusion Clause:
- a. Mercury Contamination: The supplies furnished under this contract shall contain no metallic or mercury compounds and shall be free from mercury contamination (i.e., during the manufacturing process, testing, or inspecting) or shall be on the List of Mercury-Containing

Material/Equipment approved by NAVSEA, enclosure (1) of NAVSEAINST 5100.3C. Any material/ equipment so listed shall have label plates as prescribed in enclosure (3) of NAVSEAINST 5100. 3C. The supplies offered shall not have come in direct contact with mercury or any of its compounds nor with any mercury-containing device employing only a single boundary of containment. (A single boundary of containment is one, which is not backed by a seal or barrier.) Mercury contamination of the supplies will be cause for rejection of the material.

- b. If there is reasonable cause to suspect the supplies of being contaminated by mercury, the following test may be used to determine whether contamination by metallic mercury exists: Enclose the equipment in a polyethylene bag or close-fitting airtight container and place in an oven at 135 degrees F \pm 5 degrees F for one hour. Sample the trapped air and if mercury vapor concentration is 0.0 mg/cu meter or more, the material is mercury contaminated insofar as the requirements of this contract are concerned. Mercury vapor concentration can be determined with a mercury vapor detector such as a portable General Electric Vapor Detector (Catalog No. 8257557G-3), Bechman Instrument Model K-23, or other instruments that have equivalent range and capabilities. It should be noted that certain vapors such as benzene interfere with this type of mercury vapor detector and the detector should never be zero adjusted in any suspect atmosphere.
- c. If the inclusion of metallic mercury or mercury compounds is required as a functional part of the material furnished under this contract, the contractor shall obtain written approval from NAVSEA before proceeding with manufacture. The contractor's request shall explain in detail the requirement for mercury, identify specifically the parts to contain mercury, and explain the method of protection against mercury escape. Such a request will be forwarded to the Government Inspector or Government Representative with a copy to NAVSEA. Upon approval by NAVSEA, the vendor will provide a warning plate as prescribed by enclosure (2) of NAVSHIPSINST 5100.28 which will include a statement that mercury is a functional part of the item and also the name and location of that part.
- d. If and to the extent that this contract calls for work to be performed by the contractor on a submarine, the contractor, in connection with such work, shall not bring into or utilize in the submarine any instrument or other device containing metallic mercury or mercury compounds, unless such equipment, instrument, or device has been approved by the Naval Sea Systems Command or authorized representative for use on a submarine.
- e. The contractor is required to certify via a certificate of compliance that:
 - 1) The supplies furnished under this contract contain no metallic mercury or mercury compounds.
 - 2) The contractor has taken responsible steps to ensure that the supplies furnished under this contract are not contaminated with metallic mercury or mercury compounds.
- f. The requirements of this clause shall be included in all subcontracts hereunder. Technical question pertaining to the requirements of this clause shall be referred to NAVSEA via the Government Inspection or Representative.